

IN THE DRAWINGS:

The attached sheets of drawings include changes to FIGS. 1 and 3. These sheets, which include FIGS. 1 and 3 only, replace the previous drawing sheets submitted for these Figures. In FIG. 1, the acronym for “KNOWN GOOD DICE” has been changed from (Kgd) to (KGD). In FIG. 3, “IN-SITU TEST SOCKET” has been changed to “IN-LINE TEST SOCKET.” (See attached Replacement Sheets and Annotated Sheets Showing Changes.)

REMARKS/ARGUMENTS

No new matter has been added.

The Office Action mailed September 7, 2004, has been received and reviewed. Claims 1 through 18 are currently pending in the application. Claims 3 through 12 have been withdrawn from consideration as being drawn to a non-elected invention. Claims 1, 2, 13, and 16 through 18 stand rejected. Claims 14 and 15 have been objected to as being dependent upon non-existent claims. Applicants have amended claims 1, 14 and 15, and respectfully request reconsideration of the application as amended herein.

Claim Objections

Claims 14 and 15 stand objected to as being dependent on non-existing claims 23 and 24. Claims 14 and 15 have been amended above to correct this error.

35 U.S.C. § 102(b) Anticipation Rejections

Anticipation Rejection Based on U.S. Patent No. 5,424,652 to Hembree et al.

Claims 1, 2, 13, and 16 through 18 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Hembree et al. (U.S. Patent No. 5,424,652). Applicants respectfully traverse this rejection, as hereinafter set forth.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Brothers v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Applicants submit that the Hembree references does not and cannot anticipate under 35 U.S.C. § 102 the presently claimed invention of independent claim 1, and claims 2, 13-18 depending therefrom, because the Hembree reference does not describe, either expressly or inherently, the identical inventions in as complete detail as are contained in the claims.

Applicants' invention and the Hembree reference, while both drawn to testing of a die, are distinguishable in that Applicants' invention is drawn to "directly detachably contacting the

surface of the substrate with probes; . . . bringing the . . . die and the substrate together in conductive contact . . .; and . . . electrically testing the assembly using the probes.” In contrast, the Hembree reference places the die and substrate within a cavity of a housing and wire bonds the substrate pad out to external leads on the housing which are “probed” during testing.

Specifically, the Office Action alleges:

Hembree et al anticipates a method for electrically testing a flip-chip semiconductor assembly formed from at least one integrated circuit (IC) die (24) and a substrate (14), the method comprising:

Contacting the substrate with probes (26);

While the substrate is in contact with the probes, bringing the at least one die and the substrate together (via metal clips 34) in conductive contact to form the flip-chip semiconductor assembly; and

Before the at least one die is sealed, electrically testing the assembly using the probes (col 5, ln 19-47) as recited in claim 1. (Office Action pp. 2-3).

Applicants respectfully disagree with the characterization of the Hembree reference, namely the allegation that the Hembree reference anticipates Applicants’ invention as presently claimed in independent claim 1 which reads:

1. A method for electrically testing a flip-chip semiconductor assembly formed from at least one integrated circuit (IC) die and a substrate, the method comprising:
directly detachably contacting a surface of the substrate with probes;
while the substrate is in contact with the probes, bringing the at least one die and the substrate together in conductive contact to form the flip-chip semiconductor assembly; and
before the at least one die is sealed, electrically testing the assembly using the probes.
(Emphasis added.)

In contrast to Applicants’ invention as claimed, the Hembree reference specifically discloses:

The insert traces 14B which terminated near the edge of the insert substrate 14A were wire bonded 26 to the connection points 18 within the housing 10, and were therefore electrically coupled with lead 28 attached to the traces (not shown) on the exterior of the housing 10 . . . [and] [t]he leads 28 allow for coupling of the package with a test fixture. (Col. 4, lines 19-27). After mating the bond pads 22 with the contacts 20, metal clips 34 held the lid 30 in place to prevent shifting of the lid 30, and therefore the die 24, during testing. (Col. 5, lines 19-21).

Since the assembled package was similar to a conventional ceramic semiconductor package, a conventional test sequence, including burning in, was used to ensure functionality of the die. After the die was tested, the lid was removed from the package by removing the clips, and the die was removed from the lid. (Col. 5, lines 26-31).

Clearly, the Humbree reference discloses a substrate that is retained in a cavity in a housing. The substrate has contacts that are connected to traces on the substrate. The substrate traces are bonded to the housing using wire bonds 26 which, in turn, electrically connect to leads on the housing that are then coupled to test equipment during testing. A die with bond pads is then brought into electrical contact with the contacts on the substrate and retained in place by a lid which conceals any and all probe access to the substrate within the cavity of the housing. In Humbree, the very act of bring the die into contact with the substrate prevents any access by a probe to the surface of the substrate. Additionally, Humbree's "wire bonds 26" are not analogous to Applicants' "probes" nor are they capable of "directly detachably contacting a surface of the substrate with probes" as the substrate is inaccessible and completely forecloses the possibility carrying out Applicants' claimed act of "while the substrate is in contact with the probes, bringing the at least one die and the substrate together in conductive contact".

Therefore, amended independent claim 1, and claims 2, and 13-18 depending therefrom, are not anticipate by the Humbree reference under 35 U.S.C. § 102. Accordingly, such claims are allowable over the cited prior art and Applicants respectfully request that such rejections be withdrawn.

ENTRY OF AMENDMENTS

The amendments to claims 1, 14 and 15 above should be entered by the Examiner because the amendments are supported by the as-filed specification and drawings and do not add any new matter to the application.

CONCLUSION

Claims 1, 2 and 13-18 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, he is respectfully invited to contact Applicants' undersigned attorney.

Respectfully submitted,



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KKJ/ps:rh

Attachments: Replacement Sheet(s) (drawings)
Annotated Sheet(s) Showing Changes (drawings)

Document in ProLaw

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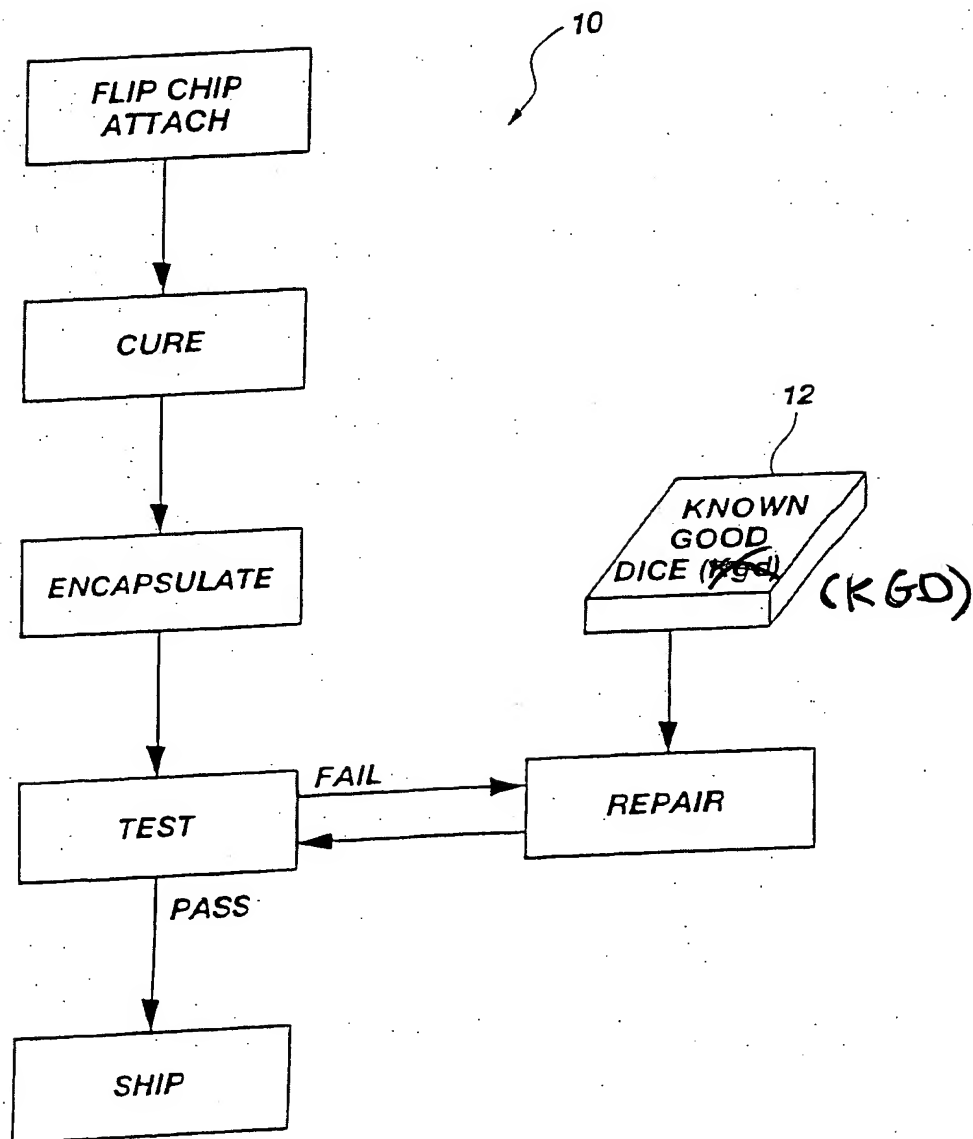
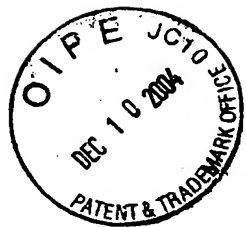


Fig. 1
(PRIOR ART)

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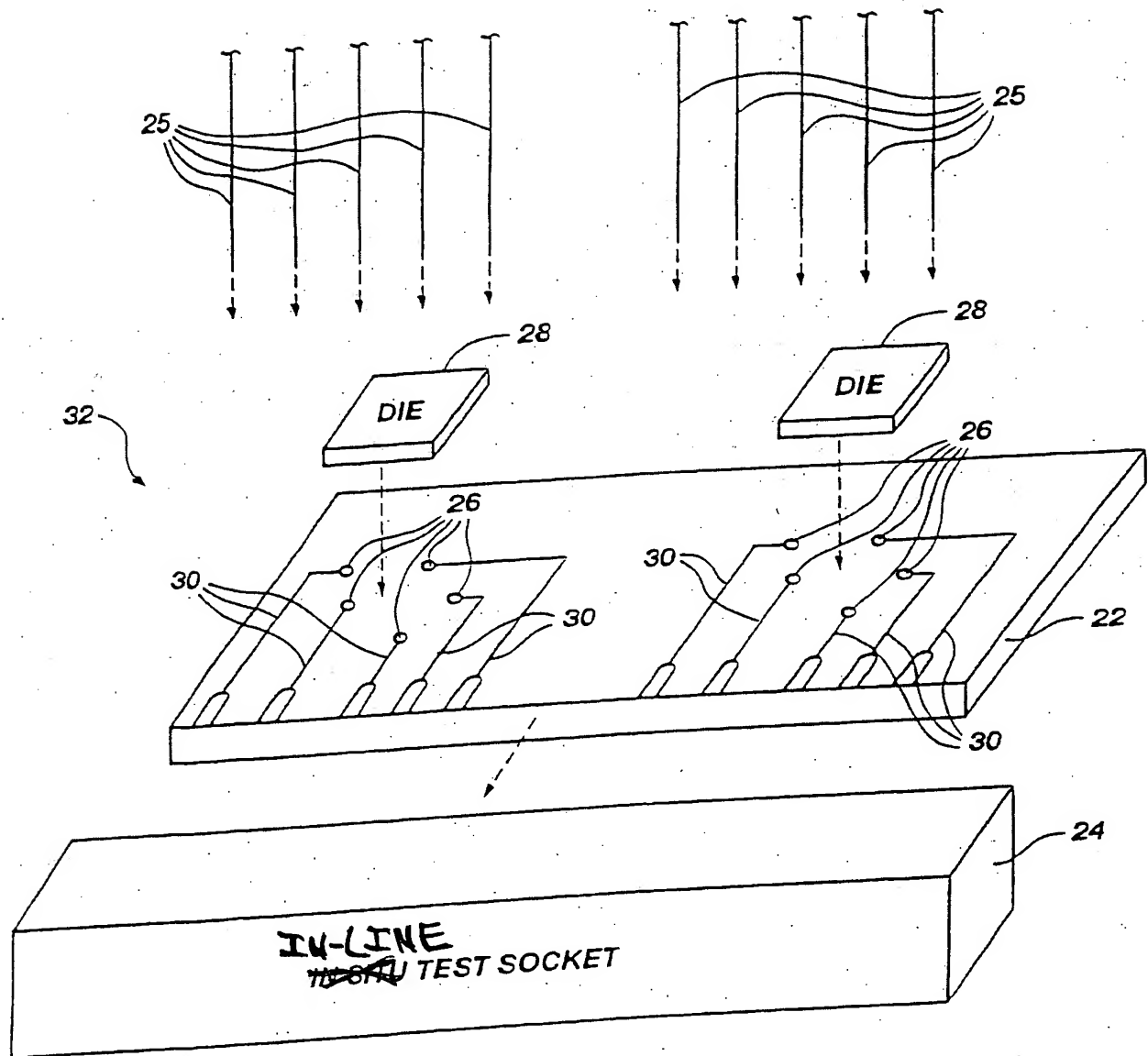


Fig. 3